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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/544,897	02/02/2006	Ralf Dunkel	CS-8582/LeA 36,354	6478
34469 7590 02/01/2010 BAYER CROPSCIENCE LP Patent Department 2 T. W. ALEXANDER DRIVE RESEARCH TRIANGLE PARK, NC 27709				
EXAMINER				
HAYLIN, ROBERT H				
ART UNIT		PAPER NUMBER		
1626				
NOTIFICATION DATE		DELIVERY MODE		
02/01/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/544,897

Applicant(s)

DUNKEL ET AL.

Examiner

ROBERT HAVLIN

Art Unit

1626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-22, 28 and 33 is/are pending in the application.
- 4a) Of the above claim(s) 33 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-22 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI-108)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

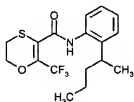
DETAILED ACTION

Status of the claims: Claims 19-22, 28, and 33 are currently pending.

Priority: This application is a 371 of PCT/EP04/01053, filed on February 5, 2004 and claims benefit under 35 U.S.C. 119(a)-(d) to foreign applications Germany 10306244.0, filed February 14, 2003 and Germany 10321270.1, filed May 13, 2003.

Restriction: Applicant previously elected group I (claims 19-26, 28, 31-33, drawn to compounds of formulae I, IV, VI, and VIII).

Applicant previously elected the species # 39 (of the amended specification) of



the formula

(where Z=1-methylbutyl).

In accordance with the election of species, no generic claim was allowable, therefore the scope of the claims were restricted to the elected species only. Thus subject matter not reading on the elected species is held withdrawn until a generic claim is found allowable. Accordingly, claim 33, which does not read on the elected species is held withdrawn. See MPEP § 803.02.

132 Declarations: The declaration under 37 CFR 1.132 of Ulrike Wachendorff-Neumann dated 10/16/2009 was considered and found insufficient to overcome the rejection under 35 USC § 103 because the data presented does not show indications of uncertainty as required by the scientific method and the differences in efficacy are consistent with what those of ordinary skill in the art would expect and does not rise to

the level of an "unexpected result" even if presented with the relevant experimental uncertainties.

The declaration under 37 CFR 1.132 of Peter Dahmen dated 10/16/2009 was considered and found insufficient to overcome the rejection under 35 USC § 103 because the data presented does not show indications of uncertainty as required by the scientific method and the differences in efficacy may very well be consistent with what those of ordinary skill in the art would expect and does not rise to the level of an "unexpected result."

RESPONSE TO APPLICANT REMARKS

Claim Rejections - 35 USC § 103

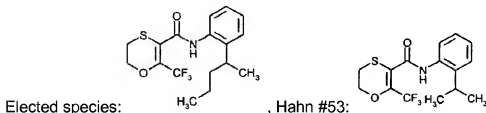
1. Claims 19-22, and 28 were rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al. (Han'guk Nonghwa Hakhoechi (2001), 44(3), p. 191-196).

First, applicant correctly points out that the English abstract of the original Hahn reference refers to the compounds as "new agrochemical fungicide" and not as a bacteriocide as the examiner previously indicated. Nevertheless, this difference is immaterial to the rejection and makes the motivation to modify the prior art as indicated even stronger.

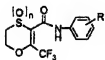
Next, applicant points out that claim 33 was erroneously included in the rejection because the claim was withdrawn for not reading on the elected species. The examiner agrees and has corrected the error.

Applicant argues (1) that structural features distinguish the claims from the prior art and (2) the data previously presented and considered fully support the patentability of the claims.

First, a reminder of the structural differences between the prior art and the elected species:



(1) Regarding the structural differences, the examiner previously pointed out in the prior office actions, Hahn teaches "R" alkyl homologues of the structure



each of which is measured for fungicidal activity. Since a significant number of the compounds known to be alkyl homologues tested by Hahn showed activity those of ordinary skill in the art would be substantially informed that other alkyl homologues of the R alkyl group would also show the demonstrated activity. Therefore, the addition of two methylene groups onto the Hahn's compound #53 is a clear homologue and remains obvious to one of ordinary skill in the art.

Applicant alleges that there are 8 compounds that have an alkyl group attached at the ortho position with none having five or more carbon atoms. Applicant also alleges that the Hahn reference teaches a clear preference for an isopropyl group at the meta position. These points do not rebut the finding that one of ordinary skill in the art would

have a reasonable expectation that alkyl homologues such as the elected species would possess the same activity as compound #53.

(2) Regarding the declarations attempting to show a secondary consideration of an unexpected result over the prior art, applicant states that they "have fully explained the single perceived anomaly in the test results, which they assume is based on the slightly greater activity observed for comparison compound 53 when tested at 100 ppm ... compared to the same compound tested at 500 ppm...." This explanation is not satisfactory particularly in view of the lack of *any* statistical data analysis and the fact that there was no direct comparison done with the elected species at the lower 100 ppm level. The examiner would like to point out that the single most important numerical value in the scientific method is the statistical significance which applicants have completely omitted in their experimental data. Given the already identified aberrant data, there can be no finding of an unexpected result without statistical measures such as a confidence interval, etc. This is particularly true when, as applicant acknowledges on page 11 of the response, the cause for differences in experiments cannot be determined and were carried out on different days, in different laboratories, and under different conditions.

Regarding what applicant refers to as "very strong data from the other tests," the same principle applies when interpreting experimental data: without a statistical analysis, no conclusion of unexpected result can be reached when there is evidence indicating there are problems with the applicant's utilization of the scientific method.

The rejection is **maintained**.

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2. Claims 19-22, 28 were rejected under 35 U.S.C. 103(a) as being unpatentable over Eicken et al. (US 5,589,493) in view of Thorner (Chem. Soc. Rev., 1979, v. 8, p. 563-580).

Applicant has amended the claims by deleting the alternative of "halogen" in the definition of G1. Therefore, this rejection is **withdrawn**.

Double Patenting

3. Claims 19-22, and 28 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 of copending Application No. 10/588491.

Applicant states that they will file an appropriate terminal disclaimer once the instant claims are found otherwise allowable. Therefore, this rejection is **maintained**.

NEW CLAIM REJECTIONS NECESSITATED BY AMENDMENT

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. Claims 19-22, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eicken et al. (US 5,589,493) in view of Hahn et al. (Han'guk Nonghwa Hakhoechi (2001), 44(3), p. 191-196) and Silverman, R. B. (The Org. Chem. of Drug Design and Drug Action, Academic Press, Inc.: San Diego, 1992, pp. 4-51).

1. Determining the scope and contents of the prior art.

Eicken et al. teaches compounds suitable as fungicides suitable for use on plants. The reference teaches in col. 17 the following fungicidal compounds (Table 8):



(A2)

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TABLE 8-continued

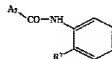
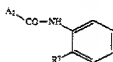
Compounds of the formula V where A is A₂

TABLE 8

Compounds of the formula V where A is A₂

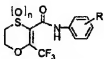
No.	n	R ⁷	Phys. data mp [°C.]
8.1	2	1-C ₂ H ₅	
8.2	2	n-C ₄ H ₉	
8.3	2	n-C ₆ H ₁₃	
8.4	2	sec-C ₄ H ₉	95-98
8.5	2	1-C ₆ H ₁₃	85-86
8.6	2	tert-C ₄ H ₉	
8.7	2	n-C ₈ H ₁₇	
8.8	2	sec-C ₈ H ₁₇	
8.9	2	n-C ₈ H ₁₇	
8.10	2	n-C ₈ H ₁₇	
8.11	2	sec-C ₈ H ₁₇	
8.12	2	1-Methylvinyl	
8.13	2	2-Methylvinyl	
8.14	2	Allyl	
8.15	2	2-Methylallyl	
8.16	2	2-Ethylallyl	
8.17	2	1-Methylallyl	
8.18	2	1-Ethylallyl	
8.19	2	1-Methyl-2-butanyl	
8.20	2	1-Ethyl-2-butanyl	
8.21	2	1-Isopropyl-2-butanyl	
8.22	2	1-n-Butyl-2-butanyl	
8.23	2	1-Methyl-2-pentanyl	
8.24	2	1,4-Dimethyl-2-pentanyl	
8.25	2	Propargyl	
8.26	2	2-butenyl	
8.27	2	3-butenyl	
8.28	2	Ethenyl	
8.29	2	Ethoxymethyl	
8.30	2	1-Methylethoxymethyl	
8.31	2	n-Butoxymethyl	
8.32	2	1-Methylpropoxymethyl	
8.33	2	2-Methylpropoxymethyl	100-102
8.34	2	1,1-Dimethylethoxymethyl	

No.	n	R ⁷	Phys. data mp [°C.]
8.35	2	n-Pentyl	
8.36	2	n-Hexyl	
8.37	2	2-Ethylhexyl	
8.38	2	2-Propenyl	
8.39	2	2-Butenyl	
8.40	2	2-Methyl-2-propenyl	
8.41	2	2-Pentenyl	
8.42	2	3-Pentenyl	
8.43	2	3-chloro-2-propenyl	
8.44	2	2,3-Dichloro-2-propenyl	
8.45	2	2,3,3-Trichloro-2-propenyl	
8.46	2	2-propenyl	
8.47	2	2-butenyl	
8.48	2	3-butenyl	
8.49	2	1-Methyl-2-propenyl	
8.50	2	Cyclopropyl	
8.51	2	Cyclobutyl	128-130
8.52	2	Cyclopentyl	134-135
8.53	2	Cyclohexyl	
8.54	2	2-Cyclopentyl	
8.55	2	1-Cyclopentyl	
8.56	2	2-Cyclohexyl	
8.57	2	1-Cyclohexyl	
8.58	2	Cycloheptyl	
8.59	2	Cyclooctyl	
8.60	2	2-Cyclohexenyl	
8.61	2	2-Cyclohexenyl	
8.62	1	1-C ₂ H ₅	
8.63	1	n-C ₄ H ₉	
8.64	1	n-C ₆ H ₁₃	
8.65	1	sec-C ₄ H ₉	oil
8.66	1	1-C ₆ H ₁₃	oil
8.67	1	tert-C ₄ H ₉	
8.68	1	n-C ₈ H ₁₇	
8.69	1	sec-C ₈ H ₁₇	
8.70	1	n-C ₈ H ₁₇	
8.71	1	n-C ₈ H ₁₇	
8.72	1	sec-C ₈ H ₁₇	
8.73	1	Etboxy	
8.74	1	Propoxy	
8.75	1	1-Methylethoxy	
8.76	1	n-Butoxy	
8.77	1	1-Methylpropoxy	
8.78	1	2-Methylpropoxy	
8.79	1	1,1-Dimethylethoxy	
8.80	1	n-Pentyl	
8.81	1	n-Hexyl	
8.82	1	Cyclopentyl	

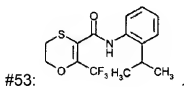
Specifically, compounds 8.8 and 8.69 are of interest where n=2 and 1 and R⁷ is sec-pentyl.

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Hahn teaches "new agrochemical fungicide" compounds of the structure



each of which is measured for fungicidal activity. A significant number of the compounds known to be alkyl homologues were tested by Hahn and showed agrochemical fungicidal activity. Furthermore, Hahn teaches and tested the activity of



Silverman teaches drug discovery, design, and development through modifications of the structure of known molecules showing some activity which is routinely applied in the chemical arts. For example, Silverman teaches on pages 16-18 homologation of carbon chains. Specifically, the method teaches how lengthening a carbon chain (by increasing successive CH2 groups) increases pharmacological effects.

2. Ascertaining the differences between the prior art and the claims at issue.

The difference between Eicken compounds and the claims is a methyl group versus a trifluoromethyl group on the oxathiin ring at the 2-position. The difference between the Hahn compound #53 and the claims is the addition of two methylene groups on the isopropyl to make 1-methylbutyl (aka sec-pentyl).

3. Resolving the level of ordinary skill in the pertinent art.

One of ordinary skill in the art of fungicide development would be well versed in the teachings of references such as Silverman. One of ordinary skill in the art would

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consider routine and well within their technical grasp the process of altering the substituents on drug molecules and screen them for activity on a large scale to improve potency or discover new compounds with desirable properties.

4. *Considering objective evidence present in the application indicating obviousness or nonobviousness.*

As discussed supra, the objective evidence fails to show any unexpected result.

One of ordinary skill in the art would be motivated to optimize or modify the compound identified by Eicken to the trifluoromethyl form in view of the success of Hahn. This modification is also supported by the Silverman which shows that alkyl homologues are expected to have similar properties. Silverman specifically teaches the homologation methodology and provides the underlying physicochemical motivation of altering the lipophilicity of the molecule which would reasonably be applicable to the compound of Hahn. In addition, the Eicken compound is a homolog of the Hahn compound, differing by successive addition of $-CH_2-$ group, thus one of ordinary skill in the art would expect the beneficial properties to be shared by the two structurally similar compounds.

This is further supported by caselaw and the MPEP in section 2144.09(II):

Compounds which are position isomers (compounds having the same radicals in physically different positions on the same nucleus) or homologs (compounds differing regularly by the successive addition of the same chemical group, e.g., by $-CH_2-$ groups) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. In re Wilder, 563 F.2d 457, 195 USPQ 426 (CCPA 1977); see also In re May, 574 F.2d 1082, 197 USPQ 601 (CCPA 1978).

Therefore, because the reference teaches homologs of the instantly claimed compounds and the MPEP states that homologs are presumed to possess similar properties, it would have been obvious to one of ordinary skill in the art to modify the alkyl chain length and arrive at the instant invention.

In addition, the prior art teaches two compounds having a very close structural relationship and being in the identical field of endeavor which possess all of the elements of the claimed compound. Therefore, one of ordinary skill in the art would look at one of the prior art in view of the other and conclude they have similar properties based on the knowledge and experience of those of ordinary skill in the art and the teachings of the prior art as a whole.

Therefore, **the claims are rejected.**

Conclusion

The claims are not in condition for allowance. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT HAVLIN whose telephone number is (571)272-9066. The examiner can normally be reached on Mon. - Fri., 7:30am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful the examiner's supervisor, Joe McKane can be reached at (571) 272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert Havlin/
Examiner, Art Unit 1626

/Rebecca L Anderson/
Primary Examiner, Art Unit 1626